

LETTER

FROM

THE SECRETARY OF WAR,

TRANSMITTING

Reports of Capt. William Mills and Lieut. William J. Turner concerning work performed on the Mullan wagon road, Montana Territory.

DECEMBER 4, 1879.—Referred to the Committee on Military Affairs and ordered to be printed with accompanying documents.

WAR DEPARTMENT,
Washington City, December 2, 1879.

The Secretary of War has the honor to transmit to the United States Senate copies of reports from Capt. William Mills and Lieut. William J. Turner, Second Infantry, of work performed by Company A, Second Infantry, on the Mullan wagon road, between Fort Cœur d'Alene and the summit of the Cœur d'Alene Mountains, in Montana Territory, also of the indorsements on said papers.

The recommendation of Col. Frank Wheaton, approved by the General of the Army, for an appropriation of \$30,000 to be expended on said road, between Forts Missoula and Cœur d'Alene, is commended to the favorable consideration of Congress.

GEO. W. McCRARY,
Secretary of War.

The PRESIDENT OF THE UNITED STATES SENATE.

HEADQUARTERS ARMY OF THE UNITED STATES,
Washington, D. C., May 23, 1879.

Generals P. H. SHERIDAN and I. McDOWELL,
Commanding Divisions of the Missouri and Pacific:

GENERALS: As you well remember, I crossed the continent in 1877 by what is known as the northern route, from Washington to Saint Paul, Bismarek, Yellowstone, Helena, Missoula, Cœur d'Alene, Walla Walla, &c., to the Pacific. Several copies of the report and maps this day mailed to your address. At that time I intended to order the troops to expend some time and labor on the road, but the events of 1878 interfered. The appearances now are that this summer will be more favorable. I therefore recur to the subject, and invite your joint co-operation in making the wagon road, once built by Lieutenant Mullan, United States Army, under an appropriation by Congress, between Missoula, Mont., and Cœur d'Alene, Idaho, at least practicable to detachments of troops and to emigrants.

The wagon road from the Yellowstone to Missoula was already good enough, but from Missoula via the Regis Borgia and Cœur d'Alene Rivers the road was so obstructed by fallen trees and by bad crossings that it was not practicable, but can be made so, chiefly by the use of axes and fire. Therefore the labor of troops may be limited to these, except in a very few places, where a common bridge would be indispensable, or a side cutting advisable.

I therefore wish that two detachments of infantry be prepared, of about two officers and forty or fifty men, each provided with three or four wagons holding the provisions, tents, camp equipage, axes, cross-cut saws, &c., and plenty of matches; one party at Missoula and the other at the post at Cœur d'Alene, each party to start on the same day, viz, the 1st day of August, 1879, and to meet on the summit of the mountain which divides the waters which flow into the Regis Borgia and Cœur d'Alene, say on the fifteenth day of August, then each party after exchanging notes to return slowly to their posts, expending a month or six weeks' labor on the road where most is needed.

The principal obstructions are in fallen trees, which should be cut out, the logs piled and burned. Trees near the road likely to fall should be felled to one side, or if they fall across the road should be burned. In some places some side cuttings will be advisable, requiring picks and shovels, which should be carried along. In a few places the officer in charge of each party may find it advantageous to change slightly the location of the road itself, of which he must be the sole judge, and I advise a careful re-examination of the country between Cœur d'Alene Fort and the mission of the same name. Too much of that road lies in the bed of a running stream, and can, in my judgment, be located on the ridge parallel with the present road, or along the face of one of the sides. The remainder of the road seems well located, except at one place in the valley of the main Columbia River; at that reach on my map entitled Bitter Root, not far from the ferry, the road was forced out of the valley by a landslide, which might be greatly improved by a side cut.

I think fifteen days to the place of meeting and forty-five days back, by parties such as I have named, by moderate work, will make the road reasonably practicable, leaving to the people concerned, or it may be to the national Congress, to rebuild the many bridges destroyed, and to further build the road.

I have named the first day of August because I think by that date the streams will all be fordable, and because the wood will be dry enough to burn, as also the grass will be far enough ripened to materially assist in maintaining the animals. It would be well to add to the outfit a few saddle horses to reconnoiter ahead, and anything else that the experience of the officer on the spot may suggest. Full reports to be made after the work is done.

With respect, &c.,

W. T. SHERMAN,
General.

WAR DEPARTMENT,
Washington City, May 24, 1879.

SIR: I have the honor to return the memorial of the legislature of Montana, praying for an appropriation for the repair and improvement of the Mullan wagon road from Walla Walla, Washington Territory, to Fort Benton, Montana Territory, inclosed in your letter of the 13th instant, with the information that the General of the Army, to whom the subject has been referred, concurs in the opinions expressed in the memorial as to the value of said road from Missoula to Walla Walla (?) and recommends a small appropriation annually to burn fallen trees and to build some bridges on the road. He thinks that \$20,000 per annum for five years would make the road practicable.

Very respectfully, your obedient servant,

G. W. McCRARY,
Secretary of War.

Hon. T. F. RANDOLPH,
Chairman Committee on Military Affairs, United States Senate.

[Telegram.]

FT. COEUR D'ALENE, Aug. 29,
(*via Dayton*), September 5, 1879.

GREENE, *Assistant Adjutant-General,*
Vancouver Barracks:

Teams from this post reached summit on Mullan road on August 22d. Road party is making this way. Road is now open for freight teams. Four-horse wagons and one light spring wagon all heavily loaded passed safely over the road from summit in three days and half. Distance 70 miles.

WHEATON.

CAMP AT CŒUR D'ALÈNE MISSION, IDAHO:

August 26, 1879.

To Capt. WM. MILLS, *Second Infantry, Commanding Co. A,
Cœur d'Alène Mission, Idaho:*

SIR: Pursuant to instructions contained in Post Order No. 56, current series, from Fort Cœur d'Alène, I was ordered to leave the post on the 1st instant for duty in opening the Mullan road between that point and the summit of the Cœur d'Alène Mountains, and now that I am relieved from the said duty by Post Order 67, current series, Fort Cœur d'Alène, I have the honor to make the following report in the form of extracts from my diary.

Camp 1, August 1, 1879.—Left post at 6 a. m. with 28 enlisted men and three 6-mule teams; opened road to Blue Creek, a distance of about 8 miles; camped on Cœur d'Alène Lake, 3 miles from post.

Camp 2, August 2.—Worked road from Blue Creek to Wolf Lodge; moved camp to latter point; distance worked, 4 miles.

August 3.—Laid over to repair wagons.

Camp 3, August 4.—Broke camp at 6 a. m.; found road full of fallen timber and some bad holes had to be filled. Camped at 6.30 p. m.; distance traveled, 6 miles.

Camp 4, August 5.—Broke camp at 6 a. m. Road blockaded with fallen timber for about two miles, after which road was found to be very badly washed; large holes had to be filled. Camped at 6 p. m.; distance traveled, about 4 miles.

Camp 5, August 6.—Broke camp at 5.30 a. m. Road worse than ever; passing through a stream lying in a rocky ravine about $2\frac{1}{2}$ miles long; the rocks were sharp and interspersed with boulders, and after this the road "laid" through several miry places, some large fallen cedars also obstructing it, but after passing these the road became very good. Camped at the Mission 7.30 p. m.; distance traveled, 8 miles.

August 7, 1879.—Laid over to-day to repair wagons and sharpen tools.

Camp 6, August 8.—Broke camp at 6 a. m. Opened road through brush and timber; about a mile of old road washed away; then cleared road about four miles. Camped on Cœur d'Alène River; distance traveled, 5 miles.

Camp 7, August 9.—Broke camp at 6.30 a. m. Cut road through brush and heavy fallen timber; filled miry places and graded about 200 yards of road; Camped on Mud Prairie at 6 p. m.; distance traveled, 5 miles.

August 10.—Laid over to sharpen tools and rest men and animals.

Camp 8, August 11.—Broke camp 6 a. m.; first two miles road very good when it became very much obstructed with fallen timber and large roots; two river crossings very bad, and large ruts had to be filled. Camped 6.30 p. m.; distance traveled, 4 miles.

Camp 9, August 12.—Broke camp 6.30 a. m.; road obstructed with large fallen trees and roots, also thick brush; a miry stream had to be bridged. Camped 5.30 p. m.; distance traveled, 3 miles.]

Camp 10, August 13.—Broke camp 6 a. m. First 2 miles road was quite bad; worked on crossing, heavy fallen timber, and dense brush, when we came to a burnt timber flat. Camped at 5 p. m.; distance traveled, 4 miles.

Camp 11, August 14.—Broke camp 6 a. m.; first 2 miles very good, when road became badly obstructed with very heavy fallen timber. Camped at 4.30 p. m. to sharpen tools; distance traveled, 3 miles.

Camp 12, August 15.—Broke camp at 6.30 a. m.; men worked very hard through heavy timber and at bad crossings. I went to the summit to-day, reaching there at 12 m., and met Capt. Penrose, Thirteenth Infantry, commanding party from Missoula, whose party is working the road 14 miles from the summit, and my party is 12 miles from summit. Camped at 6 p. m.; distance traveled, 2 miles.

Camp 13, August 16.—Broke camp 6 a. m.; road good, but fallen timber very thick and heavy; went into camp 6.30 p. m.; distance traveled, 2 miles.

August 17.—Laid over to sharpen tools and rest men and animals.

August 18.—Could not move camp to-day; worked road through mire, water, brush, and the heaviest cedars yet encountered; this has been the hardest day; all are wet and tired; distance worked, 1 mile.

Camp 14, August 19.—Broke camp 6.30 a. m.; all forenoon occupied in getting wagons through road prepared yesterday. This is the cedar swamp alluded to in the report of General Sherman's inspection of the road made in 1877, and is now fairly passable for freighting and military purposes. Graded two hillsides, and camped at 6.30 p. m.; distance traveled, $1\frac{1}{2}$ miles.

Camp 15, August 20.—Broke camp at 6 a. m.; opened road through heavy drift timber in bed of river and fallen timber which covered the road. Camped at 6 p. m.; distance traveled, 2 miles.

Camp 16, August 21.—Broke camp at 6 a. m.; built bridge across river; bad crossings were encountered to-day, also some ugly roots and heavy timber. Camped at Negro Prairie at 6.45 p. m.; distance traveled, $1\frac{1}{2}$ miles.

Camp 17, August 22.—Broke camp at 5.30 a. m.; road good until the grades of the

summit were reached, when some ugly fallen timber obstructed the road; the men worked with uncommon spirit to-day; all were eager to reach the summit before Captain Penrose's party, and at 3 p. m. the first six-mule team arrived at the summit; returning, we made our old camp at Negro Prairie at 7 p. m.; distance traveled, 14 miles.

Camp 18, August 23.—Broke camp at 6 a. m.; worked road homeward, and camped at 5.30 p. m.; distance traveled, 11 miles.

Camp 19, August 24.—Broke camp at 6 a. m.; worked road, and went into camp at 6 p. m.; distance traveled, 12 miles.

Camp 20, August 25.—Broke camp at 6 a. m.; worked road to Mission, and camped at 3.30 p. m.; distance traveled, 10 miles.

The road is fairly reopened, and is probably in as good condition as ever before.

Very respectfully, your obedient servant,

W. J. TURNER,

Second-Lieutenant, Second Infantry.

HEADQUARTERS DEPARTMENT OF THE COLUMBIA,
Vancouver Barracks, Wash., October 28, 1879.

Official copy respectfully furnished for the information of the division commander.

O. O. HOWARD,

Brigadier-General, Commanding Dep't.

PORT CŒUR D'ALÈNE, IDAHO,
September 30, 1879.

Lieut. C. W. ROWELL,

*Adjutant Second Infantry and Post Adjutant,
Fort Cœur d'Alène, Idaho:*

SIR: I have the honor to make the following report of the work performed by Co. A, Second Infantry, on the Mullan road, between this post and the summit of the Cœur d'Alène Mountains, Idaho, between the 1st of August and the 24th of September, 1879.

Company A, Second Infantry, left this post on the morning of the 1st of August under command of Second Lieut. W. J. Turner, Second Infantry, provided with three six-mule teams, tools, &c., and rations to include the 31st of August, pursuant to Post Order No. 56, July 29, 1879. Lieut. Turner's report of his work on the road, from the 1st to the 25th of August is herewith transmitted.

On the 23d of August, pursuant to Post Order No. 67, current series, I left this post to relieve Lieutenant Turner of the command of my company, and did so on the 25th of August at the Cœur d'Alène Mission, Idaho, where I met him with his command on his return from the summit.

On the 27th of August I left the mission for the purpose of working the road between there and this post. The road leaving the mission, after crossing the river bottom, enters, and, for about eight miles, is through large timber, principally cedar. It is level, and required but little work to make it good. It is then located in a cañon called by Captain Mullan "Fourth of July" Cañon, and follows the bed of a rocky stream.

I found upon examination that the road (but for a few short distances) could not be taken out of the ravine, without considerable blasting through ledges of rock, and by very heavy grading. I cleared the road through the cañon of all logs and large rocks; built two pieces of cordwood bridging, and, where it could be done, cut out the road along the stream. Eight days' work was spent on this work for about four miles. Leaving this cañon the road is generally good; it is on high ground, and hilly; grading some of the hills, and repairing and cutting out new road where washes had occurred made the road good to Wolf Lodge Creek.

Leaving Wolf Lodge Creek, the road again enters a rocky ravine; and I found it completely blocked with fallen timber, and had not been used for some years. I made a new road along the side hills, and, with some grading, entered the original Mullan road where it leaves this ravine, and from there, by making two pieces of new road for about a mile and a half, two very steep hills were avoided; about six miles from Wolf Lodge Creek the road ascends, and is again in a rocky ravine to "Blue Creek." This part of the road was cleared of all timber and large rocks, and in several places new road was made, which improved it very much.

From Blue Creek to this post, which is about eight miles, the road is in two very rocky ravines, of over a mile long each; all large rocks were removed from the road; in several places it was widened, and new road was made to avoid the ravine. Some parts of the road had been entirely washed out by freshets; in these places new road

was made. At Trout Lake Creek, a good bridge, for 50 feet, was built to replace the one built by Captain Mullan which fire and high water had destroyed.

During the time I was engaged on this work, travel between Missoula, Mont., and the lake commenced: several two and four horse wagons, with families and their baggage, made the trip from Frenchtown, Mont., to the lake, in eight, nine, and ten days' travel. They reported the road good for a mountain one. Large flocks of sheep and herds of horses then passed to Montana during the past month. I was surprised to meet so many travelers both with and without wagons. I was informed, by stock men who have passed over the road every summer for the past few years, that the Mullan road, as now located, cannot be used between the months of December and June, on account of deep snows and high water.

By a good deal of work in blasting through rock and grading, the road, no doubt, could be so located as to avoid water-courses it now follows. During the fifty-four days the company was employed on this work, I am glad to say no serious accident occurred to any of the men, and that all worked cheerfully and with interest in the work.

I returned to the post with my company on the 24th instant.

Very respectfully, your obedient servant,

WM. MILLS,

Captain Second Infantry, Commanding Company A.

[First indorsement.]

POST OF FORT CŒUR D'ALENE, IDAHO, *October 7, 1879.*

Respectfully forwarded to headquarters of the Army through headquarters Department of the Columbia. The Mullan road from this post to the summit is not only open to travel, but is reported by numerous parties from Montana to be in good condition and an excellent mountain road. In order to preserve the work already done, and to permanently open this favorite route between Montana and the rich country west of it, I would respectfully recommend that an ample appropriation, certainly not less than \$30,000, be requested to defray the cost of construction between this vicinity and Missoula, a substantial highway secured against injury and destruction by yearly spring floods.

Very substantial bridges and a deal of heavy grading and blasting is required to build a permanent road over this route. The amount of travel over it during past thirty days in both directions has surprised us here. Every few days wagon-trains are passing, and several intelligent parties just off the road, with whom I have conversed, predict a very heavy traffic over the route next spring. One drove of twelve thousand sheep passed east over the road three weeks ago, and bands of horses are continually moved on it.

FRANK WHEATON,

Brevet Major-General, U. S. A., Colonel Second Infantry, Commanding.

HEADQUARTERS DEPARTMENT OF THE COLUMBIA,

Vancouver Barracks, Wash., October 28, 1879.

Official copy respectfully furnished for the information of the division commander.

O. O. HOWARD,

Brigadier-General, Commanding Department.

HEADQUARTERS MILITARY DIVISION OF THE PACIFIC

AND DEPARTMENT OF CALIFORNIA,

Presidio of San Francisco, November 3, 1879.

Respectfully forwarded to the division commander.

J. C. KELTON,

Lieutenant-Colonel, A. A. G.

HEADQUARTERS DIVISION OF THE PACIFIC

AND DEPARTMENT OF CALIFORNIA,

November 13, 1879.

Respectfully forwarded for the information of the General of the Army.

IRVIN McDOWELL,

Major-General, Commanding Division and Department.

HEADQUARTERS OF THE ARMY,
Washington, November 17, 1879.

Respectfully referred to the honorable Secretary of War, merely inviting his attention to the recommendation of Colonel Wheaton, that Congress be asked to appropriate \$30,000 to be expended on the road between Missoula and Cœur d'Alene. This summer, by my orders, the troops have worked on the road, and with good effect, and thereby enabled emigrants to pass. I have myself been over the road, and believe it has a national value, therefore indorse General Wheaton's recommendation.

W. T. SHERMAN,
General.

LETTER

FROM

THE SECRETARY OF WAR,

TRANSMITTING

A report from Capt. William H. Penrose in regard to the reopening of the Mullan wagon road in Montana.

JANUARY 15, 1880.—Referred to the Committee on Military Affairs and ordered to be printed.

WAR DEPARTMENT,
Washington City, January 14, 1880.

The Secretary of War has the honor to transmit to the United States Senate a copy of report of Capt. William H. Penrose, Third Infantry, dated September 25, 1879, with copies of indorsements thereon, relative to the reopening of the Mullan wagon road from Fort Missoula to the summit of the Cœur d'Alene Mountains, Montana Territory; and to invite attention to reports upon the same subject transmitted by his predecessor, under date of the 2d ultimo, recommending an appropriation of \$30,000 for the work to which the reports relate. (Senate Executive Document No. 3, Forty-sixth Congress, second session.)

ALEX. RAMSEY,
Secretary of War.

The PRESIDENT
Of the United States Senate.

FORT MISSOULA, MONT.,
September 25, 1879.

SIR: I have the honor to submit my report in regard to the reopening of the Mullan wagon road from this point to the summit of the Cœur d'Alene Mountains, Montana.

In compliance with Special Orders No. 69, current series, dated Headquarters Fort Missoula, Montana Territory, July 23, 1879, I left the post on the morning of the 1st of August, 1879, with my command, consisting of Company I, Third Infantry, 1 officer and 25 men; and Company D, Third Infantry, 1 officer and 23 men. Assistant Surgeon S. Q. Robinson, U. S. A., accompanied the command as medical officer.

The command was furnished with four six-mule wagons, one ambulance, two pack-mules, and six saddle-horses. All necessary tools were furnished: axes, picks, shovels, crosscut-saws, stone-drills, powder and fuse, carpenter's tools, saddler's and blacksmith's kit, log-chains, everything I could think of necessary for prompt execution of the work.

The following itinerary of the trip is respectfully submitted:

August 1, 1879.—The command moved out at daylight, reaching the town of Missoula, four miles distant, at 6.30 a. m. After a short halt, the march was resumed and continued over a good road, mostly on the bench land next to the river, to within four miles of Frenchtown, where camp was made at noon, on a small creek. The day was intensely hot and the dust blinding. Distance, 14 miles 2,264 feet.

August 2, 1879.—Broke camp at 5 a. m., reached Frenchtown at 7.30 a. m., where a short halt was made to have a nail drawn from one of the mule shoes, and to have some washers made. The train then moved on, the troops, after a short halt, having preceded them. The road was in fine condition, being yet in the settlements, and no difficulties were encountered until Six Mile Creek was reached. Here the bridge was reported to be unsafe by Mr. Shafer, whose ranch is close to it. He had placed his barn directly across the road leading to the ford, and close to the bank of the creek, on the come-out from the ford. The bank of the creek on this side (east) was very steep, and in order to get down the wagons had to be taken around the corner of the barn, and then, with a square turn, down into the creek. The distance between the two turns was too short to handle six mules in, and the bank so sidling we were obliged to rope the wagons to prevent an upset. This caused some delay, but all were gotten over safely. (I may add here, the wagons were each loaded to 4,600 pounds.) The grade just beyond the creek required the doubling of teams, but was owing more particularly to the teams and drivers being "green." Afterwards six mules did the work. The road from this point to Nine Mile Creek is over the foot-hills, and some pretty sharp grades are encountered; but otherwise the road is in good condition. Camp was made near the new bridge on Nine Mile Creek pretty late in the evening. Distance marched, 11 miles 1,299 feet.

August 3, 1879.—Broke camp at 5 a. m. I found on examination that it would be impossible for me to take the transportation over the road from the west side of the bridge, to where it joined the old road, a distance of about a mile and a half, for reasons which I will give in my report of the return trip. Going back to the ford, near the old bridge, I very soon constructed an approach to the creek, and, throwing in some brush in a swampy place on the opposite side, passed the command over. One and three quarter miles farther on Burnt Fork was reached. Here the bridge was not passable. Taking such floor timbers as were necessary, I built a corduroy over the swamp which the bridge spans about fifty feet long, and then continued the march. From here to a creek just this side (east) of the Point of Rocks, where camp was made, the road was in fine condition, except one short bridge. Distance marched, 8 miles 2,531 feet.

August 4, 1879.—Broke camp at the usual hour, and in a short time reached the Point of Rocks. These rocks are projections of the mountains, reaching down to and into the river, the upheavals being from fifty to one hundred and fifty feet high and eleven thousand seven hundred feet in length. Among these the road sinuates, and, owing to short turns around points, and very steep, though short, pitches, make it a difficult road to pull over for more than a two horse-wagon. At one point we were obliged to double teams. On approaching Moose Creek Ferry, the road descends into the bottom, and, to avoid a steep sand hill on the west side, I kept the road on the bench. An asaquea had been put in running parallel with the road and then crossing it, and, as the bluff was abrupt, had cut the road nearly away. This was repaired, and a culvert put in, when we moved on to the creek. A little over a mile from the ferry, just beyond, a grade was encountered which I found would require working from one end to the other. I directed camp made at the creek. Distance, 3 miles 4,958 feet.

August 5, 1879.—Commenced work at 5.30 a. m., occupying most of the day on the grade, which was worked from one end to the other, a distance of four thousand two hundred feet; in some places the road was filled in nearly to the original slope of the hill. A hill some little distance farther on had to be worked, and here the teams were doubled. Camp was made on a small creek. Distance passed over, 2 miles 3,245 feet.

August 6, 1879.—Having on the 5th ridden over the big grades, I felt satisfied our teams could not pull our loads over. I had the loads reduced to about 2,600 pounds, and at the usual hour, 5.30 a. m., started; progress was very slow, as most of the grade had to be worked. After reaching the summit of the first grade I found the loads were still too heavy to handle with the road in the condition it was. I further reduced them and sent them ahead, in one place being obliged to rope them to keep them from going over. On reaching the foot (west) of the grades, the wagons were unloaded and returned for the remainder left on the grade. Work was continued on these grades until darkness put a stop to it, by which time, by very hard work, they were put in a condition to bring forward the remaining stores from the previous camp the next morning. These two grades are 19,200 feet long, and finish up with an incline (it cannot be called a grade) 2,200 feet long. The two grades cross two mountains, which come bluff on to the river. The altitude of the first I estimate as between 700 and 800 and the second one as from 900 to 1,100 feet. The slope of incline was 1 to 2 feet. Each wagon had to be roped down, requiring two operations; rough locks were put on both wheels, the rope attached to

the wagon, and then passed twice around a tree, and so great was the pressure upon it, that both turns of the rope were buried in the tree. A rope had to be passed around the wagons to keep them from going over. Four hours was consumed in lowering the four wagons. Distance, 3 miles 4,958 feet.

August 7, 1879.—Teams were started back at daylight. Returned at 10 a. m., when the march was resumed. Finding the old stage road to Quartz Creek through the bottom by far better than the hill road, though a little longer, I took it, clearing it of all obstructions, reaching the Milk or Robinson's Ranch or Fourteen Mile Creek in good season, where camp was made. Distance, 6 miles 2,777 feet.

Riding ahead I examined Brown's cut-off and the road over the hills. The former is but 2,365 feet long; the hill road about five miles, and very difficult. I decided on opening the former.

August 8, 9, and 10, 1879.—Work was commenced on the cut-off at the usual hour. This road passes along the foot of the mountains only a few feet above high-water mark. About two-thirds of the distance is through rock and shale, with four land-slides making up the rest of the distance. The road was well cut back into the bluffs, and on the outside a wall of laid rock was constructed most of the distance and then filled in. The land-slides had completely obliterated the old road. These land-slides are composed of earth and fine disintegrated rock. These were dug out, and, going up the mountain, shoveled down until they ceased sliding. (Heavy log revetments should be put in here.) Two springs flow from the mountain across the road, about midway of the distance. Culverts were put over these.

August 11, 1879.—Broke camp at the usual hour—5 30 a. m. A short distance beyond encountered a very steep grade, leading from one bench to another. Teams had to be doubled. The road to Berry's Ranch is excellent, except the crossings of the numerous streams, which were abominable, and invariably steep grades encountered, especially Deep Run, requiring working and doubling of teams. Camp was made on a creek one mile west of Berry's Ranch. Distance, 13 miles 1,718 feet.

August 12, 1879.—Broke camp at 5 30 a. m. Two grades were encountered which had to be worked all the way; on one the teams doubled. The ferry was reached at 4 p. m., but as there was no suitable place on the west or left bank of the river for camp, it was made on the right bank. Distance, 13 miles 3,049 feet.

August 13, 1879.—Broke camp at 5 30 a. m. The first wagon on the ferry-boat broke through the deck planking, which was very old. However, we took it over, and placing boards under the wheels got it off without accident. I then got out our tools and with the flooring of an old building and some slabs, etc., planked the entire boat, after which the teams and command were brought over as rapidly as possible. I sent Lieutenant Avery forward with a party to clear the road. At 11 a. m. moved on; found the road in pretty good condition, until we struck the grade going over Camel Hill. This grade is very steep and long, requiring ten mules to a wagon. In places it had to be worked. The descent on the west side is still steeper than the east, and the rains had cut a deep gully (in many places three feet deep), crossing and recrossing the road all the way down. This had to be filled up before the wagons could be brought down. Camp was made at a creek a little beyond the foot of the grade. Distance, 9 miles 1,187 feet.

August 14, 1879.—Broke camp at 5 30 a. m., cleared the road of obstructions and built a bridge sixty-five feet long over a creek; farther on worked a grade; built a temporary crossing over a creek, and made a temporary corduroy over a quagmire. The road was then excellent until it struck the Saint Regis Borgia, where camp was made; distance, 7 miles 61 feet. Before dark I made a thorough examination of the country with a view of opening a new road. At this point the old road along the river for a considerable distance had been washed away, requiring the bed of the river to be used, which was most difficult, on account of the large boulders. I decided to follow the bench, which from about one-half mile back trends inward to the foot of the mountains, which here are about one half mile from the river, and, running in a semi-circle, strike the river some mile and a half beyond. As the following day, the 15th, was the day designated for the two commands to meet at the summit of the Cœur d'Alene Mountains, I left Lieutenants Belger and Avery to open the new road.

August 15, 1879.—The command did not move, but, taking my mounted escort, I pushed on to the summit, where I arrived at 1 30 p. m., soon after Lieutenant Turner, of the Second Infantry, in command of the working party from Fort Cœur d'Alene, joined me. We spent a couple of hours together, comparing notes, etc., when I returned, reaching Crow's Nest at dark. With commendable zeal, Lieutenants Belger and Avery opened a fine road two miles long, putting in one bridge (another I put in on my return).

August 16, 1879.—The command was promptly moved out, and, crossing the river four times, came onto Crow's Nest (on the way building a temporary corduroy), reaching it at 1 30 p. m. Camp was here made, and work during the afternoon done beyond. Distance, 3 miles 4,079 feet.

August 7, 1879.—Sunday. As up to this time no rest had been given the men, work was suspended. From this time forward no work was done on Sundays.

August 18, 1879.—A grade half a mile beyond camp was the first thing to engage our attention, requiring about as much work as an entirely new grade would. The work was difficult; in some places the inside of the grade required cutting nine feet deep. It was completed during the day.

August 19, 1879.—Commenced work at usual time; did not break camp; dinner taken out in haversacks. The work of timber-cutting now really commenced. All fallen timber was cut and carried entirely clear of the road, and all standing timber for two hundred feet on both sides of the road, liable to fall across it, was cut out. Short bridges, corduroys, and culverts were put in over the numerous mountain streams and springs constantly encountered. Distance, 4½ miles.

August 20, 1879.—Broke camp and moved to a small prairie, four miles and a half from Crow's Nest; in the afternoon continued the work of cutting timber, putting in bridges, etc. As this was the last available place for camping, permanent camp was established. Distance, 4 miles 2,911 feet.

August 21, 22, and 23, 1879.—Work was continued day by day, becoming more difficult as we advanced, the timber increasing in size, and becoming almost a chaparral, and the road more obstructed. Innumerable mountain streams were crossed, some of them having followed the road for several hundred feet, cutting it out and rendering it useless. New roads were cut, and bridges, etc., put in.

August 24, 1879.—Sunday, and no work.

August 25, 1879.—Learning that there were several wagons on the road, and having still eight miles to go to the summit, I determined to take a detachment and push on, clearing the road sufficiently for wagons to pass, completing the work on my return. I directed Lieutenant Avery, with 14 picked men, to push on, and I would join him on the following day. On the morning of the 25th I took the remainder of the men, under Lieutenant Belger, to a point of the river where the immense quantities of flood-wood had accumulated, and which was directly across the road, and the only available crossing of the river. The flood-wood was piled up twelve feet high, and had spread itself out from mountain to mountain. The work of burning was commenced, which was found most difficult, and all the dry wood for a mile was required to keep the fires going. Two days were spent on this work. The banks on both sides of the river are so low that a slight rise floods the bottom from mountain to mountain.

August 26, 1879.—Left the command to prosecute the work and joined Lieutenant Avery, who had only made about two miles on the 25th. I determined to reach the summit on this day, and though there were six miles before us, by dint of very hard work it was accomplished, and 4.30 p. m. saw us at the terminus of our work. Camp was made on the Saint Regis, three quarters of a mile from the summit. From the river to the summit two very steep rocky ascents interpose, the earth being washed away, leaving immense boulders, making the road almost impassable. Distance from the permanent camp to summit, 13 miles 4,492 feet.

ITINERARY OF RETURN TRIP.—ALL DISTANCES BY TAPE LINE.

August 27, 1879.—Early in the morning the work commenced on the road up to the summit; all obstructions were cleared, and all trees liable to fall across the road cut out for two hundred feet on each side. In two places new roads were cut to avoid bad "wash-outs"; in the road the boulders were all taken out or broken down, cuts filled up, and the road made as smooth as if macadamized. The morning was consumed on this work. In the afternoon the work was continued eastward. Another steep, rocky hill was put in the same condition as those above spoken of, all trees liable to obstruct the road were cut down, and short bridges and culverts made over the mountain streams. Camp was made on Saint Regis. From the summit to this camp the Saint Regis is crossed seven times, besides one creek. Distance from summit, 4 miles 1,421 feet.

August 28, 1879.—At this point a bench of the mountain, fifteen feet high, comes bluff on to the river, forcing the road for a long distance through the bed of the river. To avoid this, an incline had been built to rise on this bench, then crossing the bench four hundred and seventy-one feet over another incline into the road. This incline, ninety-six feet long, was completely rotted out; a new one was put in. Two mountain streams crossed the bench, and the timber, the largest we had encountered on the road, from two to four feet diameter, had fallen and were piled up like jack-straws. The day was consumed felling down and removing the old incline, cutting out the timber on the bench, and putting in the incline on the east side; this was short.

August 29, 1879.—Continued the work on the incline, which was put up of heavy timbers, flooring all split logs, and well secured.

August 30, 1879.—The work was completed early on this day, and then the party continued on putting in short bridges, cutting out what had been overlooked, and generally putting the road in first-rate condition, reaching the camp at 8.30 p. m. Distance, 10 miles 630 feet.

August 31, 1879.—Sunday. No work. The battalion mustered.

September 1, 1879.—Broke camp at 5.30 a. m. The work of straightening out the

road, felling trees, &c., was continued. One mile east of Crow's Nest, a corduroy sixty-five feet long was put in over a marsh. On all the corduroys put in the flooring was put on string-pieces, these resting on sleepers. Still further on a deep ravine was crossed, requiring grading for a distance of thirty feet on each side, and necessitating the removal of several stumps and roots; this occupied four hours. The route was continued and camp made on the bank of the Saint Regis Borgia. This was the last camp on that river. Distance, 7 miles 4,038 feet.

September 2, 1879.—As one stream on the new road made at this point was not bridged on going up, I returned and put in a bridge sixty-five feet long, grading the eastern approach for forty feet. This work, and cutting a new road to connect from the east, occupied the morning. The afternoon was spent in grinding up the tools.

September 3, 1879.—Moved out at 5.30 a. m. Continued cutting timber on both sides of the road; put in a hundred foot bridge over a marsh; camped on a creek about two miles from foot of Camel's Hill. Distance, 4 miles 4,126 feet.

September 4, 1879.—Moved at the usual hour, and continued the cutting and thoroughly repairing the western slope of Camel's Hill; crossed the grade in the afternoon, ten mules to the wagon; weight of load, about three thousand pounds; cut out some new road and many trees. Camped on a creek. Distance, 7 miles 503 feet.

September 5, 1879.—Moved at the usual hour; cut out five hundred feet of new road on high ground to avoid a bog. Put in a bridge twenty-five feet long, and turned a stream, which was running down the road for a distance of six hundred feet; reached the ferry at 11.30 a. m.; remained an hour feeding hay, then crossed the command; proceeded on to Halpin's old ranch, now kept by Ashley and Miller; during the afternoon's march, some trees were cut out from across the road, some cut down, and one grade still further repaired. Camp was made at the last named ranch at 8.30 p. m. Distance, 10 miles 1,009 feet.

September 6, 1879.—Moved out at the usual hour; crossed a grade, and then came to a deep ravine. The road crosses it some distance from its mouth, and the approaches at the crossing forming the apex of a V, with a very bad crossing. I put in a bridge thirty feet long; afterwards the march was continued and camp was made on a creek near Perry's Ranch. Distance, 6 miles 1,695 feet.

September 7, 1879.—Sunday, and no work.

September 8, 1879.—Commenced work on a bridge forty-seven feet long, on which being completed camp was struck, and the command moved on. The road from there to Losean's is exceptionally good, and from there a moderate grade is passed coming down onto a small stream. Finding the bottom very solid, the stream narrow, and evidently not much water ever flowing, I graded both sides as preferable to a bridge. The work was not quite completed when night set in, and I made camp a half a mile further on, near Deep Run. Distance, 10 miles 1,638 feet.

September 9, 1879.—Sent a party back to finish the work on the creek. At this point a deep ravine is encountered, the road crossing it about a third of a mile from its mouth. In order to reach the crossing the road on both sides, for some half a mile on the west side and a mile on the east, is carried over some heavy grades, and the grades on both sides at the crossing were so heavy as to require twelve mules to pull a light load. It was my intention at this point to have kept the road on the river bench, putting in a bridge over this ravine. I considered this a desideratum, as by so doing the road would almost continuously be on the bench bordering the Missoula River, from Point of Rocks to the ferry, the grades being all light; but on thorough examination I found it would require a bridge 150 feet long, with the center pier 65 feet high. I had no means to build a suitable bridge, and most reluctantly abandoned the project. I then turned my attention to the grades on the west side. I lengthened it two hundred and fifty feet, cutting down the crest 15 feet. A crib-work on a portion of it, 70 feet long, was put in on the lower side, and filled in up to grade. On the east side the crest of the grade was cut down 4 feet.

September 10, 1879.—Work was continued on the grades, and completed at 10.30 a. m., when the command moved on, the road being excellent, to the Milk or Robinson's Ranch, or Fourteen Mile Creek. At Brown's cut-off we found a little work to do, removing the dirt which had fallen in from the land-slides. Camp was made at the ranch. Distance, 4 miles 2,034 feet.

September 11, 1879.—Moved camp at the usual time, and soon reached the foot of the incline or jump-off. Distance, 6 miles 4,093 feet. At the foot of the big grades, a cursory examination of this incline on going up led me to believe it might be avoided by crossing Spring Branch up at its head by a bridge, and then grading on the slope of the mountain down to the flat. On further examination, on my return, I found it would entail very much more work than I had at first supposed, requiring more men and time than I had at my disposal; but something must be done; for, as it stood, the road was not practical for freighting. With the time at my disposal and the men I had, there was but one thing I could do, viz, cut down and lower the worst point—a rocky projection. This we proceeded to do.

The rock on top could be gotten out with pick and bar, but blasting had to be re-

sorted to after this was removed. The rock was found very hard and the drilling very slow. Excellent iron ore was found at one point about four feet from the level of the old road. The grade was cut down at the crest seven feet, and made level and smooth, and still higher up some rocks taken out. September 12, 13, 14, and 15 were spent on this work, finishing at 8.30 a. m. on the 16th.

September 16, 1879.—Camp was struck; twelve mules put to each wagon, loaded to about 2,500 pounds, when no difficulty was found pulling up. I am of opinion, with good drivers and a team used to pulling together, a much heavier load can be pulled up. Six mules to the wagon easily took the loads over the two grades. The road from there on to Moose Creek Ferry is excellent, with the exception of one grade, where the teams had to be doubled. From this point (the ferry) the road through the Point of Rocks is good, with the exception of the very short turns and one or two steep pitches. Camp was made on a spring branch one mile west of widow McCab's Ranch. Distance, 11 miles 3,920 feet.

September 17, 1879.—Moved at 5.30 a. m. Arrived at Burnt Fork at 9 a. m., and commenced pulling down such parts of the bridge as were rotted. The day was spent putting in new string-pieces and flooring. Distance, 4 miles 2,588 feet.

September 18, 1879.—Finished the bridge and moved on to Six Mile Creek. Found the string-pieces of the bridge sound and in good condition; also, part of the flooring; but the underpinning had been washed out, allowing the bridge to sag in some places and teeter, which had given rise to the assertion that the bridge was unsafe. New underpinning was put in, new flooring laid where required, when we drove over it. I then put the men on the wagons and started for the post, where the command arrived at 7 p. m. Distance to Frenchtown, 7 miles 2,690 feet.

In reviewing the work on this road, I would respectfully add the following: I judge from the letter of instruction of the General that his intention in sending out the command was to put this road in such condition as to enable him, if necessary, to send any command over it, with its transportation, and not especially to open it as a freighting road, and on this hypothesis I have worked; but, in view of the promptness with which the people have availed themselves of using the road since I published a notice it was opened, it may be considered of sufficient importance by the national authorities to make an appropriation for its thorough and permanent repair, and the following observations may be of some moment: The road from Six Mile Creek should be, and can be, carried around the foot of the hill, avoiding the grade; after which, with but very little work, it can be kept on the river bench to Nine Mile Creek. This would avoid all grades between the two places. At Nine Mile Creek the county commissioners have put up a new bridge, about one mile above the old one (the old bridge is just above the ford), but I am at a loss to know why they selected the site, for the road on the west side, or right bank of the creek, forms two or three S's, then follows up the side of the hill in a snake-like manner, which is a perfect quagmire; then over some very rough ground for over a mile to where it intersects the main road. Several hundred feet of corduroy would be required on the approach to the west side of the bridge. I did not attempt to do any thing at this point, for the reason it would have taken me two or three weeks, and when completed the road would be good for nothing. The site of the old bridge, or perhaps a couple of hundred feet above it, is the proper place for a bridge; the bench on the west side comes bluff on to the creek and never overflows. On the east side one hundred feet of low trestle-work, in addition to the bridge, will carry it to the bench; the heavy, dense undergrowth will effectually prevent this trestle-work from being washed out, and there is ample evidence that but little flood wood ever comes down. I shall recommend to the commissioners the removal of the bridge to the old crossing. The string-pieces of the old trestle-work are in a good state of preservation, though they have been in thirty years.

From Nine Mile to Moose Creek Ferry, through the Point of Rocks, the road can be greatly improved at comparatively little expense. From

this point on to the west side of the big grade we encountered the only really difficult part of the road to the ferry, and this can only be avoided by crossing the Missoula first at or near Moose Creek Ferry, and then recrossing on to the bench five or six miles this side of the Milk Ranch or Fourteen Mile Creek. The bench on the west or left bank of the river is level, admitting of a hard level road. When the stages were running to Superior City they had ferries at both these points. I am of opinion the river can be crossed with two short abutment spans and one long one two hundred and fifty to three hundred feet, perhaps shorter, at a cost not to exceed \$5,000 to the bridge. This done, bridge or ferry, and a bridge put in over Deep Run, a continuous, good, smooth, solid road is obtained from Missoula to the ferry, avoiding all grades of any moment, making an excellent freighting road.

After crossing the ferry, the first difficulty is Camel's Hill. The grade on the east side is three thousand six hundred feet long, and very steep all the way to the summit. It is three hundred and thirty feet across, and three thousand five hundred feet down to the foot, on the west side, with two very steep pitches. By grading, these can be improved. I regret not having an instrument with me to get the altitudes of the grades, but this one I should think was seven or eight hundred feet high. The soil is clayey on the west side, and I am informed in wet weather it is all a pack animal can do to mount it. I had not time to examine the country to see if this hill could be avoided, but I do know there is a trail used by the Indians from our new first crossing of the St. Regis, on its right bank to the mouth. I also found about half a mile from the mouth the remains of an old bridge, built just as Captain Mullen built all his bridges, which leads me to believe his road originally was on that side. I respectfully suggest it might be well to have this examined. From the western slope of Camel's Hill to the new first crossing of the St. Regis the road is excellent. Here the mountains come close down to the river, but the slope is not so great as to prevent a good road being cut around. This would avoid the first two crossings. The next two crossings are made to avoid what I call the "White Rock," a rock point of the mountain, some two hundred feet high, and almost perpendicular. From the river a road *could* be cut around this point, but at considerable expense. This passed, the river is not again crossed for some distance above the Crow's Nest; then the crossings are constant. With a view of avoiding these innumerable crossings, I examined pretty thoroughly the mountain slopes to the last crossing, and I can say, with a great degree of certainty, a road can be built all the way upon the left bank from White Rock to the summit, with but two crossings between, and at half the cost of bridging. The creek is now crossed *thirty four* times. A road thus constructed would insure permanency. The banks of this stream are unsuited for bridging, requiring long and high trestle-work on either one bank or the other, and always jeopardized by the immense quantity of flood-wood brought down every spring. As it now stands, at best it can only be used from about the 1st of June to the 1st of December. Marks at the summit show where the snow has been fifteen feet deep. I am informed the usual fall is six feet. I shall prepare a map of the route from the ferry to the summit, based on my own measurements and observations, and will submit it, if required.

Since opening the road twenty wagons have passed going east, a hoard of one thousand five hundred sheep coming east, and not a day passed that men and packs did not pass us each way. No teams passed coming east. Hay and oats can be procured at *all* the ranches on the

road. The grazing as far as the ferry is pretty good, in some places superb; from there to the summit it is scarce, but the drive from Crow's Nest to the prairie over the summit can be made in one day, but not coming this way. There is no doubt that the opening of this road will be of material benefit to the country, as is evidenced by the promptness with which the people have availed themselves of it, though so late in the season. (Ice $\frac{1}{2}$ inch thick found on the night of August 3.) Two gentlemen from near Helena have gone over, one to drive back one thousand head of cattle, the other a band of horses; it will be the first time cattle has been brought over, and if the drive is successful, next year large herds will come that way. Thirty-five thousand head came into the Territory this summer by the way Bozeman. A telegraph from here to Fort Cœur d'Alene could be easily put up; but few poles would be required. I have endeavored to put the road in as permanently good condition as possible, but each year it will require work, especially through the heavily-timbered sections. I found on examination that danger from falling trees was not from the dead ones, which as a rule were sound and solid, but from the green ones; on examination these were found to be rotten in the roots though the tops were green, giving no sign of decay. From these trees there is no safeguard but cutting every tree out for one hundred and seventy-five feet on each side of the road.

One other observation I would respectfully invite attention to. About three or four miles this side of the summit, a stream comes into the Saint Regis—compass bearing east and west, which in size is larger than it. I attempted to go up it, but so dense was the undergrowth, that I found it impossible; but from an elevated point, and from the trending of the mountains, it showed a *very much* wider bottom than the Saint Regis. Would it not be well, if this branch has not already been examined, to ascertain if it does not lead through a pass in the mountain, which would avoid the very heavy grade on the west side of the Cœur d'Alene and the difficulties of construction down the Cœur d'Alene River.

I cannot close this report without inviting the attention of the "General" to the immense quantity of work done by the command; no one can appreciate it who was not with us to see for themselves. *En* grade on the entire route, one hundred and fifteen miles, was worked; twenty-six bridges, from twenty-five to one hundred feet long, were built; culverts innumerable; and hundreds of trees cut down and removed. All this hard work was done cheerfully and with alacrity, though as a rule, they worked from 5.30 a. m. to 5.30 p. m. They are deserving of commendation, and I trust the application I have made for them to be paid extra-duty pay will be granted, as they earned it and are justly entitled to it. I am under obligations to the officers with me for their assistance in prosecuting the work.

I am, very respectfully, your obedient servant,

WM. H. PENROSE,

Captain Third Infantry, Commanding Company.

THE ADJUTANT GENERAL.

Headquarters of the Army, Washington, D. C.

FORT MISSOULA, MONT., October 4, 1849.

Since writing the above report, absence from the post on duty having prevented its being forwarded, I have seen the proprietors of the Mis-

soula ferry, and they inform me that in the six weeks past, thirty-nine wagons have crossed, thirty thousand sheep, and saddle animals every day; several wagon loads of fruit have come over, two horses pulling two thousand one hundred pounds of freight. From these, I find the road is, on this side of the summit, in most excellent condition, and I am particularly pleased to find there has been no further slides on Brown's Cut-off; however, the melting of the snow in the spring will undoubtedly cause considerable sliding at this point.

If it is contemplated making this road permanent, it is of importance that it should be gone over as early in the spring as possible, *before the waters go down*, especially on the Saint Regis, in order to arrive at certain facts essential to its proper location.

The mail is now being carried via the Joco and Pondera Rivers; thence down Clark's Fork, across Pend-Orela Lake, to Spokane Falls, sixty miles longer than by the Mullan road. The contractor informs me he takes this route owing to the condition of the road from the summit of the Cœur d'Alene to Spokane Falls.

I am, very respectfully, your obedient servant,

WM. H. PENROSE,
Captain Third Infantry, Commanding Company.

[First indorsement.]

HEADQUARTERS FORT MISSOULA, MONT.,
November 13, 1879.

Respectfully transmitted through department headquarters to the Adjutant-General of the Army, with the information that within-mentioned report was received at these headquarters only this morning, from which facts it will be perceived that no time has been lost by me in placing it in the possession of the General of the Army.

Captain Penrose was dispatched to Fort Shaw since the return of the within expedition after recruits, simply *at his own request*, another officer having been thought of for the purpose.

Possibly, however, the delay may have been productive of some good, as it has given Captain Penrose an opportunity of supplying additional information.

GEO. GIBSON,
Lieut. Col. Third Infantry, Commanding Post.

HEADQUARTERS DEPARTMENT OF DAKOTA,
Saint Paul, Minn., December 2, 1879.

Respectfully forwarded to the Adjutant-General of the Army, through the Headquarters of the Military Division of the Missouri.

ALFRED H. TERRY,
Brigadier-General, Commanding.

HEADQUARTERS MILITARY DIVISION OF MISSOURI,
Chicago, December 6, 1879.

Respectfully forwarded to the Adjutant-General of the Army.

I approve the suggestions of Captain Penrose that the enlisted men of the Army are entitled to extra-duty pay for work on this road. Furthermore, for future improvements on this road, I would suggest that Congress be asked to appropriate the sum of \$12,000, to be expended under the direction of the Chief Engineer, Department of Dakota. From the rapidity with which the settlers availed themselves of this route,

after it was imperfectly opened by Captain Penrose, its value can easily be appreciated, and I believe that the sum of money suggested, considering the work already done, would put the road in good shape.

I earnestly recommend that the Delegate from Montana be requested to prepare a bill to secure the appropriation of the amount above mentioned.

P. H. SHERIDAN,
Lieutenant-General, Commanding.

HEADQUARTERS OF THE ARMY,
December 13, 1879.

Approved and earnestly recommended.

W. T. SHERMAN, *General.*

Respectfully returned to the General of the Army, inviting attention to the letters of the Secretary of War to the Senate and House of Representatives, dated this 2d ultimo, recommending an appropriation of \$30,000 for the road between Forts Missoula and Cœur d'Alene. Is it desired that Congress be requested to appropriate \$12,000 additional?

In any event, the Adjutant General should furnish two copies of this report for Congress.

By order of the Secretary of War:

H. T. CROSBY,
Chief Clerk.

WAR DEPARTMENT,
January 2, 1880.

HEADQUARTERS OF THE ARMY,
Washington, January 10, 1880.

The recommendation of \$30,000 for the Mullan road is liberal.

The \$12,000 is embraced in the above.

W. T. SHERMAN, *General.*

C